



DIVINOL®

lubricating greases



Zeller+Gmelin
Mineralöle • Druckfarben • Chemie

High-Performance Greases

Divinol® industrial greases provide a high performance range of high quality lubricating greases for the most diverse uses. Our wide product range enables you to choose the optimum solution for a large number of industrial lubricating applications taking the technical as well as the economical point of view into account.

Zeller+Gmelin is aware of its customers' problems. In co-operation with them lubricating greases for the most diverse uses have been developed in conditions as close to working conditions as possible in order to meet the technical requirements for each individual case. The constant high quality of the lubricants in use means that the user achieves the greatest possible operational safety.

In order to get a successful lubrication, you have to

- know the exact requirements to the lubricant resulting from the bearing points which have to be greased
- select the most appropriate lubricant depending upon the requirements involved

The most important characteristics of the bearing and the operating conditions determine the requirements to the lubricant, i.e.

- Type of bearing (roller or slide bearing) and bearing size
- Operating temperature
- Environmental conditions (presence of water, dust, caustic solutions, etc.)
- Speed (ranges)
- Type of lubrication (central lubrication, grease filling etc.)
- Load

Greases are divided into the following main categories:

Lithium soap-based greases	page 4
Complex soap-based greases	page 6
Sodium soap-based greases	page 8
Calcium soap-based greases	page 8
Gel greases	page 10
Pastes	page 10
Bio-degradable greases	page 10
Designation according to DIN	page 12
MATO-grease gun system	page 14

Lithium soap-based greases (Li)

The conspicuous transparency of these greases makes the difference to the other greases immediately apparent. They are mostly short-fibered, shiny, very smooth and have a homogenous structure. The drop point is around +190 °C. Lithium soap-based greases are water-resistant and therefore cover most of the areas of application of the lime and sodium soap-based greases. In many cases (but not all!) lithium soap-based greases can therefore be used as multi-purpose greases in order to reduce the number of greases stocked. The application temperature lies between -30 °C and +130 °C.

Complex soap-based greases

The most common types are aluminium, calcium and lithium complex soap-based greases. They have a homogenous and smooth structure and are often characterised by a high pressure resistance and drop points of approx. +250 °C. Complex soap-based greases are highly water-resistant. The temperature range in which they may be used lies between approx. -30 °C and +150 °C depending upon the oil base selected and the type of thickener and last, but not least, on the relubrication intervals.

Sodium soap-based greases (Na)

These have a continuous fibred structure and show a very good worked consistency. The drop point of these greases lies between +150 °C and +180 °C. The lubricity lies between -20 °C and +110 °C depending upon the type of raw material used and the consistency. Sodium soap-based greases are not water-resistant. Amongst other uses they are used for lubricating thermally affected roller and sliding bearing

(machine tools, electric motors, comminution machines, dry cylinders, mills, hammer works, rolling mills and roller tables etc.). The bearing points should not, however, be subjected to the effects of steam or water.

Calcium soap-based greases (Ca)

The most known representatives of this type are the so-called consistency or cup greases. The drop point of the greases in this group is approx. +100 °C. They have a smooth homogenous structure, excellent worked consistency and are water-resistant. Generally they are used to lubricate sliding bearings within the temperature range of approx. -30 °C to +60 °C as well as for sealing these bearings against water and dust. Calcium soap-based greases are further recommended for use on ships and in water engineering as well as for the lubrication of water pumps and turbines and as a frost protection grease.

Gel greases

These are soap-free greases. A silicate compound is used to thicken the mineral oil (Bentonite, Aerosil or similar). These greases have practically no drop point. Gel greases can be used up to approx. +160 °C at high speeds, and even up to about +180 °C at low speeds, but with regular relubrication.

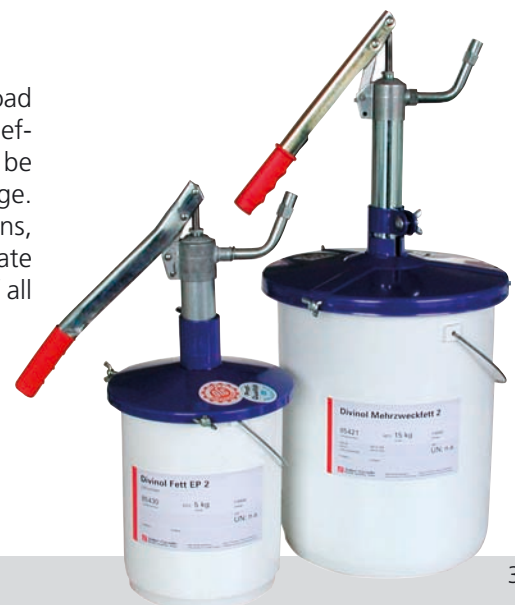
Pastes

Pastes with high mechanical load capacity, very adhesive. Protect effectively against corrosion and can be used in a wide temperature range. Are used for separating operations, tool changing stations and facilitate the mounting and de-mounting of all kinds of fittings.

Biologically degradable greases

These greases are based mainly on rapeseed oil or synthetic ester that decompose rapidly. Calcium and lithium soaps are the thickeners primarily used. The greases based on rapeseed oil can be used in the temperature range -20 °C to +80 °C, while ester based greases have a wider temperature range according to the type of ester used. Due to their moderate thermal load, greases with a rapeseed oil base are mainly used for applications with total loss lubrication. Ester-based greases on the other hand are used in a wide range of applications similar to the mineral oil based greases.

The following overview of our grease program is designed to help you select the most appropriate lubricating grease. Further products and special mixes are available upon request. Our technical support is available for advice on the technical application.



Denomination/ Item number	NLGI class	Thickener/ base oil	Temperature range	Dropping point	Base oil viscosity at 40 °C/mm ² /s	Designation as per DIN 51825/ ISO 6743-9
Lithium soap-based greases						
Divinol® Fett WEP 3 22140	3	Lithium soap/mineral oil	–25 to +130 °C	190	220	KPF 3 K-30 ISO-L-XBCHB 3
Divinol® Fett L 3 85560	3	Lithium soap/mineral oil	–30 to +130 °C	190	100	KP 3 K-30 ISO-L-XCCHB 3
Divinol® Fett L 2 85440	2	Lithium soap/mineral oil	–30 to +130 °C	190	100	KP 2 K-30 ISO-L-XCCHB 2
Divinol® Mehrzweckfett 2 22971	2	Lithium soap/mineral oil	–30 to +120 °C	190	110	K 2 K-30 ISO-L-XCCHA 2
Divinol® Mehrzweckfett W 22270	2	Lithium soap/mineral oil	–30 to +120 °C	190	110	KF 2 K-30 ISO-L-XCCHA 2
Divinol® Fett L 283 21120	2	Lithium soap/mineral oil	–35 to +130 °C	190	100	KP 2 K-30 ISO-L-XCCHB 2
Divinol® Fett EP 2 85430	2	Lithium soap/mineral oil	–30 to +130 °C	190	220	KP 2 K-30 ISO-L-XCCHB 2
Divinol® Fett Fibrous 2 96840	2	Lithium soap/mineral oil	–25 to +130 °C	190	220	KP 2 K-20 ISO-L-XBCHB 2
Divinol® Fett MTS 2 08951	2	Lithium soap/mineral oil/ polyalphaolefin	–50 to +120 °C	190	30	K 2 K-50 ISO-L-XECHA 2
Divinol® Mehrzweckfett graphitiert 85000	2	Lithium soap/mineral oil	–30 to +130 °C	190	100	KPF 2 K-30 ISO-L-XCCHB 2
Divinol® Fett LGM 2 27620	2	Lithium soap/mineral oil	–30 to +130 °C	190	110	KPF 2 K-30 ISO-L-XCCHB 2
Divinol® Fett LM 2 85800	2	Lithium soap/mineral oil	–30 to +130 °C	190	100	KPF 2 K-30 ISO-L-XCCHB 2
Divinol® Fett 2 Mo 24710	2	Lithium soap/mineral oil	–35 to +130 °C	190	100	KPF 2 K-30 ISO-L-XCCHB 2
Divinol® Fett F 14 EP 85750	1	Lithium soap/mineral oil	–40 to +120 °C	190	100	KP 1 K-40 ISO-L-XDCHB 1
Divinol® Fett LT 1 22010	1	Lithium soap/ Technical white oil	–20 to +130 °C	190	70	KPF 1 K-20 ISO-L-XBCHB 1
Divinol® Synthogrease LF 1 23220	1	Lithium soap/ polyalphaolefin	–60 to +120 °C	190	20	KPF 1 K-60 ISO-L-XECHB 1
Divinol® Fett L 0 20240	0	Lithium soap/mineral oil	–40 to +120 °C	180	100	GP 0 K-40 ISO-L-XDCHB 0

General advice on application

Packaging types

400 g Lube-shuttle
400 g
5 kg
15 kg
25 kg
45,5 kg
180 kg

Water-resistant EP lubricating grease light in colour with solid lubricant additives capable of bearing high mechanical loads. Suitable for roller bearings subject to shock-like loads, vibrations and oscillating movements.

Water-resistant multi-purpose grease with a wide range of applications for roller and slide bearings subject to thermal and mechanical stress. Also suitable for use as a wheel hub grease.

Water-resistant multi-purpose grease with a wide range of applications for roller and slide bearings subject to thermal and mechanical stress. Also suitable for use as a wheel hub grease, in central lubrication installations with progressive distributor and for gear lubrication in drilling machines.

Water-resistant multi-purpose grease with a wide range of applications for roller and slide bearings subject to thermal stress.

Water-resistant white multi-purpose grease with solid lubricant additives for a wide range of applications.

A versatile water-resistant EP grease for roller and slide bearings. Suitable for use in central lubrication systems with self-cycling distributors. Approved for operating according to MAN 283 Li-P2.

Water-resistant EP lubricating grease, capable of withstanding thermal stress, for roller and slide bearings, such as tapered roller bearings or swivel-joint roller bearings that are subject to shock-like loads and vibrations.

Water-resistant long-fibrous EP lubricating grease with good adhesion properties for roller and slide bearings subject to thermal stress. It contains high-performance additives for long-term lubrication and for the most difficult conditions.

Water-resistant partly synthetic grease for high and low temperatures for roller and slide bearings with a high sliding friction component, especially suitable for lubricating fast running bearings.

Water-resistant multi-purpose grease containing solid lubricant for lubricating roller and slide bearings subject to thermal stress. The lubricating effect is improved by the addition of the solid lubricant.

Water-resistant and EP-alloyed multi-purpose grease for the lubrication of roller and slide bearings. A combination of solid lubricants allows a high pressure absorption and imparts emergency running properties.

Water-resistant multi-purpose EP grease with solid lubricant additives for roller and slide bearings subject to shock-like loads and oscillating movements. A solid lubricant additive provides this grease with emergency running properties.

Water-resistant, multi-purpose EP-grease with solid lubricant additives for highly stressed roller and slide bearings. The solid lubricant additive provides this grease with a high load-carrying capacity with emergency running properties. (Also suitable for use in wire-rope production for lubrication and as corrosion protection.)

Very soft water-resistant grease for lubricating roller and slide bearings subject to thermal stress as well as for central lubrication systems with self-cycling distributors. Also suitable for gear lubrication.

Water-resistant multi-purpose EP grease of light colour containing solid lubricant for lubricating roller and especially slide bearings, e.g. guiding elements with a plastic-metal combination.

Water-resistant, fully synthetic low-temperature grease containing solid lubricants for roller and slide bearings with high loads. Used for extended relubrication intervals and also suitable for lifetime filling.

Water-resistant liquid grease with EP additives for lubrication of gears and for central lubrication systems.

Denomination/ Item number	NLGI class	Thickener/ base oil	Temperature range	Dropping point	Base oil viscosity at 40 °C/mm ² /s	Designation as per DIN 51825/ ISO 1826 and ISO/DIS 6743-9
Lithium soap-based greases						
Divinol® Fett ZSA 23970	00	Lithium soap/mineral oil	–40 to +120 °C	170	68	GP 00 K-40 ISO-L-XDCHB 00
Complex soap-based greases						
Aluminium complex soaps						
Divinol® Aluplex 2 06560	2	Aluminium complex soap/mineral oil	–25 to +150 °C	230	300	KP 2 N-20 ISO-L-XBDHB 2
Divinol® Fett AL 973 EP 2 09732	2	Aluminium complex soap/mineral oil/ polyalphaolefin	–40 to +150 °C	240	200	KP 2 N-40 ISO-L-XDDHB 2
Divinol® Fett AL M 2 22570	2	Aluminium complex soap/mineral oil	–25 to +150 °C	240	300	KPF 2 N-20 ISO-L-XBDHB 2
Divinol® Fett AL R 0 96480	0	Aluminium complex soap/mineral oil	–20 to +130 °C	180	320	GPF 0 K-20 ISO-L-XBCHB 0
Divinol® Fett AL 867 08670	00	Aluminium complex soap/mineral oil	–25 to +140 °C	190	220	G 00 N-20 ISO-L-XBDHA 00
Lithium-complex soaps						
Divinol® Lithogrease 3 21990	3	Lithium complex soap/mineral oil	–20 to +150 °C	230	220	KP 3 N-20 ISO-L-XBDHB 3
Divinol® Lithogrease 2 B 21711	2	Lithium complex soap/mineral oil	–30 to +150 °C	230	220	KP 2 N-30 ISO-L-XCDHB 2
Divinol® Langzeitachsenfett HT 260 27310	2	Lithium complex soap/mineral oil	–30 to +150 °C	250	240	KP 2 N-30 ISO-L-XCDHB 2
Divinol® Lithogrease 2 B/300 25490	2	Lithium complex soap/mineral oil	–25 to +150 °C	240	300	KP 2 N-20 ISO-L-XCDHB 2
Divinol® Lithogrease G 421 20160	2	Lithium complex soap/mineral oil/ polyalphaolefin	–35 to +160 °C	230	130	KP 2 P-30 ISO-L-XCEHB 2
Divinol® Lithogrease 2500 23090	2	Lithium complex soap/mineral oil	–20 to +150 °C	220	500	KPF 2 N-20 ISO-L-XBDHB 2
Divinol® Lithogrease 2500 MO 26390	2	Lithium complex soap/mineral oil	–20 to +150 °C	240	500	KPF 2 N-20 ISO-L-XBDHB 2
Divinol® Lithogrease 1500 23310	1	Lithium complex soap/mineral oil	–20 to +150 °C	220	500	K 1 N-20 ISO-L-XBDHA 1

General advice on application

Packaging types

400 g Lube-shuttle
400 g
5 kg
15 kg
25 kg
45,5 kg
180 kg

Water-resistant liquid EP-grease for example for gear lubrication. The grease is easily conveyable via central lubrication systems as well as at low temperatures. Approved for operating Willy Vogel central lubricating systems, Mercedes Benz vehicles and aggregates as per sheet 264 as well as MAN commercial vehicles according to MAN 283 Li-P 00/000.

Water-resistant grease with EP additives for high temperatures for all kinds of roller and slide bearings subject to high mechanical stress.

Water-resistant partly synthetic lubricating grease with EP additives for use in roller and slide bearings in a wide temperature range.

Water-resistant grease for high temperatures containing EP additives and solid lubricant for roller and slide bearings subject to stress. The solid lubricant provides this grease with emergency running properties.

Water-resistant gear lubricating grease with EP and solid lubricant additives for use in gear boxes subject to high mechanical stress and where vibrations and shock loads occur.

Water-resistant liquid grease with good thermal and mechanical stability suitable as a gear lubricating grease in angle grinders and other electrical appliances.

Water-resistant complex soap-based grease with EP additives for roller and slide bearings subject to high mechanical and thermal stress, especially for all wheel hubs and clutch release bearings. Both types of greases are dyed blue.

Especially suitable for high-loaded ECO axles of the most modern generation. Useable where axle grease of the Bergische Patentwarenfabrik is recommended.

Water-resistant, EP-alloyed complex soap grease provided with high pressure absorption properties and high base oil viscosity for roller and slide bearings subject to high thermal and mechanical stress. The grease is dyed blue.

Water-resistant partly synthetic complex soap-based grease for roller and slide bearings subject to high mechanical and thermal stress. Approved by the German Federal Armed Forces according to Nato-Code G 421.

Water-resistant lithium complex soap grease with solid lubricant additives and high base oil viscosity for especially high pressures. Suitable for the use in bearings subject to high thermal and mechanical stress resp. slow speeds. Also suitable for the lubrication of drive chains in industrial machines.

Water-resistant, solid-lubricant containing and EP-alloyed high-temperature grease with high base oil viscosity. Useable for the lubrication of slide and roller bearings in a wide temperature range. Also for transmission chains in industrial machines and for the use in stone pit machines, e.g. chisels, pins, bolts.

Water-resistant complex soap grease for roller and slide bearings subject to high thermal and mechanical stress. Suitable for example for gear lubrication with lifting spindles or lubrication of roller bearings in rolling mills.

Denomination/ Item number	NLGI class	Thickener/ base oil	Temperature range	Dropping point	Base oil viscosity at 40 °C/mm ² /s	Designation as per DIN 51825/ ISO/DIS 6743-9
Complex soap-based greases						
Lithium complex soap						
Divinol® Lithogrease 0 21140	0	Lithium complex soap/mineral oil/ polyalphaolefin	–30 to +150 °C	200	320	GP 0 N-30 ISO-L-XCDHB 0
Divinol® Lithogrease 00 20480	00	Lithium complex soap/mineral oil/ polyalphaolefin	–30 to +150 °C	190	200	GP 00 N-30 ISO-L-XCDHB 00
Divinol® Lithogrease 000 22320	000	Lithium complex soap/mineral oil/ polyalphaolefin	–30 to +140 °C	170	380	GP 000 N-30 ISO-L-XCDHB 000
Calcium complex soaps						
Divinol® Fett CaX 2 24730	2	Calcium complex- soap/mineral oil	–30 to +150 °C	250	100	KP 2 N-30 ISO-L-XCDHB 2
Divinol® Fett HT-F 27400	2	Calcium complex- soap/mineral oil	–30 to +150 °C	250	150	KPF 2 N-30 ISO-L-XCDHB 2
Calciumsulfonat complex soap						
Divinol® Multitherm 2 54922	2	Calciumsulfonat com- plex soap/mineral oil	–25 to +140 °C*	280	200	KP 2 N-20 ISO-L-XBDIB 2
Sodium soap-based greases						
Divinol® Fett N 2 85321	2	Natrium soap/mineral oil	–20 to +110 °C	170	220	K 2 H-20 ISO-L-XBBBA 2
Divinol® Getriebefett N 0 85550	0	Natrium soap/mineral oil	–20 to +90 °C	150	220	GP 0 F-20 ISO-L-XBBBB 0
Divinol® Getriebefett N 00 96341	00	Natrium soap/mineral oil	–20 to +90 °C	150	220	GP 00 F-20 ISO-L-XBBBB 00
Calcium soap-based greases						
Divinol® Abschmierfett 3 85120	3	Calcium soap/ mineral oil	–30 to +60 °C	100	46	K 3 C-30 ISO-L-XCAHA 3
Divinol® Abschmierfett 2 85051	2	Calcium soap/ mineral oil	–40 to +60 °C	100	36	K 2 C-40 ISO-L-XDAHA 2
Divinol® Fett Top 2003 23980	2	Calcium soap/ mineral oil/synthetic oil	–30 to +110 °C	140	1000	KP 2 G-30 ISO-L-XCBIB 2

General advice on application

Packaging types

400 g Lube-shuttle 400 g 5 kg 15 kg 25 kg 45,5 kg 180 kg

Water-resistant partly synthetic liquid greases with EP additives for lubricating gear boxes subject to high mechanical and thermal stress. Divinol Lithogrease 0 and Lithogrease 00 are preferably used as life-time lubrication in gear boxes on angle grinders, circular saws etc. Lithogrease 00 and Lithogrease 000 are used for roller lubrication of linear guideways in machine tools.

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			●	●	●	●	●	
			●	●	●	●	●	

Conventional calcium complex soap grease for the use with permanent influence of water like for example with the casting process in the steel works industry or as general-purpose grease in the cement industry (not suitable for the lubrication of sprockets).

				●	●	●	●	
			●	●	●	●	●	

Water-resistant, EP-alloyed and solid lubricant containing high-temperature grease. Useable in a wide temperature range with extreme loads, e.g. in steel and rolling mills for the lubrication of slide and roller bearings even under strong environmental influences.

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Waterproof roller and slide bearing grease with an increased pressure absorption capacity and a particularly wide range of applications.

*With regular re-lubrication useable up to 180 °C.

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A non water-resistant chassis grease with an increased pressure absorption capacity for roller and slide bearings subject to thermal stress. Also suitable as a wheel hub grease.

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			●	●	●	●	●	
			●	●	●	●	●	

Non water-resistant EP liquid greases for use in slow-running mechanical gear boxes that are not oiltight, e.g. circular spike harrows.

Waterproof conventional chassis grease with a natural colour for roller and slide bearings not subject to much thermal stress. May also be used as a water-pump grease.

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Waterproof conventional chassis grease with a natural colour for roller and slide bearings not subject to much thermal stress. May also be used as a spray booth grease.

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Water-resistant, partly synthetic lubricating grease with a pronounced adhesive capacity. For all-round use. The grease is also available in NLGI class 1 with solid lubricant.

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Denomination/ Item number	NLGI class	Thickener/ base oil	Temperature range	Dropping point	Base oil viscosity at 40 °C/mm ² /s	Designation as per DIN 51825/ ISO/DIS 6743-9
Calcium soap-based greases						
Divinol® Fett G 460 23920	2	Calcium soap/ mineral oil	–30 to +100 °C	130	110	K 2 G-30 ISO-L-XCBIA 2
Divinol® Kabinenfett 2 also available dyed red 85052	2	Calcium soap/ mineral oil	–40 to +60 °C	100	36	K 2 C-40 ISO-L-XDAHA 2
Divinol® Kabinenfett 1 also available dyed red 95270	1	Calcium soap/ mineral oil	–40 to +60 °C	100	36	K 1 C-40 ISO-L-XDAHA 1
Gel greases						
Divinol® Hochtemperatur- fett Z 2 85260	2	Aerosil/mineral oil	–20 to +150 °C	Has no dropping point	480	K 2 N-20 ISO-L-X-BDDA 2
Divinol® Hochtemperatur- fett Z 1 85220	1	Aerosil/mineral oil	–20 to +150 °C	Has no dropping point	480	K 1 N-20 ISO-L-X-BDDA 1
Pastes						
Divinol® Paste SF 24440		–	–30 to +250 °C	180	120	–
Divinol® Kupferpaste 21740	2	–	–30 to +1100 °C	–	300	–
Bio-degradable lubricating greases						
Divinol® Fett R 2 95850	2	Calcium soap/ rapeseed oil	–20 to +80 °C	140	36	K 2 E-20 ISO-L-XBAHA 2
Divinol® Fett CE 2 96550	2	Calcium soap/ synth. ester	–35 to +100 °C	140	46	K 2 G-30 ISO-L-XCBHA 2
Divinol® Fett E 2 96570	2	Lithium soap/ synth. ester	–35 to +130 °C	190	68	K 2 K-30 ISO-L-XCCHA 2
Divinol® Fett E 00 96670	00	Lithium soap/ synth. ester	–30 to +130 °C	180	53	GP 00 K-30 ISO-L-XCCHB 00

General advice on application

Packaging types

400 g Lube-shuttle
400 g
5 kg
15 kg
25 kg
45,5 kg
180 kg

Seawater-resistant multi-purpose grease with excellent corrosion protection properties for the lubrication of all kinds of wear points, exposed to the influence of water, especially seawater including humid sea air. Approved by the German Armed Forces according to Nato code G-460.

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Waterproof greases with good anti-corrosion properties and good adhesion for coating spray booth walls. These greases are available in natural colour or dyed red and in the NLGI classes 1 and 2.

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● ● ●

Water-resistant grease for high temperatures for roller and slide bearings subject to high thermal stress. Examples of use: hot air ventilators or crane installations in foundries.

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Very soft, water-resistant grease for high temperatures for roller and slide bearings subject to high thermal stress as well as for lubricating gears.

● ● ● ● ●

Water-resistant, partly synthetic grease paste for clamping elements like for example chucks in machine tools in the metal working industry. Approvals of various chuck producers are available.

● ●

Water-resistant anti-corrosion assembly paste for high temperatures with very good separative properties for screw connections, socket tools of all kinds and wear bushes.

● ● ● ● ● ●

Waterproof chassis grease on the basis of rapeseed oil for lubrication points not subject to a lot of thermal stress with total loss lubrication and with regular relubrication. Suitable for use in the water industry, agriculture and forestry works. Biologically degradable according to OECD 301 C.

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Waterproof chassis grease with synthetic ester base for roller and slide bearings not subject to a lot of thermal stress with normal lubrication. Due to its good temperature properties, Divinol® Fett CE 2 can also be used as fire-hydrant grease.

● ● ● ● ●

Water-resistant multi-purpose grease with synthetic ester base for roller and slide bearings in applications in a wide temperature range. Also suitable for use as a wheel hub grease as well as for use in central lubrication systems with self-cycling distributors. Approved by the German Federal Armed Forces according to Bw-Code GY3095.

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Water-resistant liquid EP grease with synthetic ester base for central lubrication systems and for lubricating gears. Approved for operating in Willy Vogel central lubrication systems.

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Designation according to DIN

Table 1: Lubricating grease designation according to DIN 51825/51826

This regulation classifies lubricating greases with characteristic letters.
(extract from the table)

1	2
Type of lubricating grease	Characteristic letter
Lubricating greases for roller and slide bearings and sliding surfaces according to DIN 51825	K¹⁾
Lubricating greases for closed gear boxes according to DIN 51826	G
Lubricating greases for open gear boxes, gear teeth (adhesive lubricants without bitumen)	OG
Lubrication greases for friction bearings and seals ²⁾	M
The basic properties of lubricating greases with synthetic oil base are marked as the mineral oil based ones described above.	Addition by characteristic letter
¹⁾ ISO/TR 3498 uses XM instead of K as the characteristic letter ²⁾ Lower requirements than those for lubricating greases K	

Table 2: Additional characteristic letters for lubricating greases according to DIN 51825/51826 (extract from the table)

1	2
Additional Characteristic letter	Lubricants
F	For lubricants with solid lubricant additives (such as graphite, molybdenum polysulfide).
P	For lubricants with additives for reducing friction and wear in the mixed friction area and/or for increasing the load capacity.

Example for the designation of lubricating greases

Characteristic letter (type of lubricant) from table 1	Additional characteristic letter from table 2	Consistency index (NLGI class) from table 3	Additional identification character from table 4	Additional index from table 5
K	P	2	K	-30



Table 3: Consistency classification for lubricants according to DIN 51818

The classification of the lubricating greases is based on the worked penetration and helps classifying them after their consistency.

1	2	3	4
Consistency index NLGI classes according to DIN 51818	Worked penetration acc. to DIN ISO 2137 Units ¹⁾	Nature	Application
000	445 to 475	watery	Gear greases
00	400 to 430	liquid	
0	355 to 385	semi fluid	
1	310 to 340	very soft	Roller bearing greases Slide bearing greases
2	265 to 295	soft	
3	220 to 250	supple	
4	175 to 205	nearly firm	Block greases
5	130 to 160	firm	
6	85 to 115	very firm	

¹⁾ 1 Unit \approx 0,1 mm

Table 4: Add. characteristic letters for lubricating greases acc. to DIN 51825/51826

1	2	3
Additional characteristic letter	Max. application temperature acc. to DIN 51821	Behaviour with regard to water according to DIN 51807 part 1 Evaluation level DIN 51807 ¹⁾
C	+60 °C	0-40 or 1-40
D		2-40 or 3-40
E		0-40 or 1-40
F	+80 °C	2-40 or 3-40
G		0-90 or 1-90
H		2-90 or 3-90
K	+100 °C	0-90 or 1-90
M		2-90 or 3-90
N		2-90 or 3-90
P	+120 °C	As per agreement
R	+140 °C	
S	+160 °C	
T	+180 °C	
U	+200 °C	
	+220 °C	
	over +220 °C	






¹⁾ 0 means no change
1 means slight change

2 means moderate change
3 means massive change

Table 5: Additional indices for lubricating greases according to DIN 51825/51826

1	2
Additional index	Minimum application temperature
-10	-10 °C
-20	-20 °C
-30	-30 °C
-40	-40 °C
-50	-50 °C
-60	-60 °C

MATO grease gun system Lube-Shuttle®

	Denomination	Item number	Description
	Lube-Shuttle® System grease gun	ZMAT 30 224 40	M10x1 with hose (300 mm) Hand lever grease gun for Lube-Shuttle®, high-quality version with zinc-coated grease reservoir, ergonomic handhold, packed in economic display cardboard box
	Lube-Shuttle® TG Single-handed system grease gun	ZMAT 30 280 84	TG M10x1 with hose (300 mm) Single-handed grease gun for Lube-Shuttle® system cartridges with zinc-coated steel grease reservoir, ergonomic handhold, packed in PE-bag <ul style="list-style-type: none"> ■ pressure capacity up to considerably over 300 bar ■ all known advantages of the MATO-Lube Shuttle® hand lever grease gun (see above) remain unchanged ■ with nozzle jet and 4-jaw hydraulic grip nozzle
	Lube-Shuttle® Refill-Adapter-Set	ZMAT 31 150 50	<ul style="list-style-type: none"> ■ filling adaptor for system cartridges adequate for MATO ecoFILL- and pneuMATO-fill-filling devices ■ with protection cap and 5 yellow screw caps ■ for a safe relocking of the re-filled cartridges ■ easy re-filling of empty cartridges!
	Grease following piston	ZMAT 33 928 26 ZMAT 33 934 65 ZMAT 33 938 54	FO 15 285/242 for inner-Ø 255-282 mm FO 25 356/285 for inner-Ø 305-350 mm FO 50 392/330 for inner-Ø 345-385 mm <ul style="list-style-type: none"> ■ for ecoFIL and centraFILL-filling devices, Bucket-Grease pneuMATO 55, pneuMATO 55 high flow, pneuMATO 75 and pneuMATO-fill-compressed-air filling device ■ suction pipe-Ø 40 mm
	Screw cap-S	ZMAT 33 960 22 ZMAT 33 960 46 ZMAT 33 960 60	Cap S 15 310 mm for bucket-outer-Ø 255-295 mm Cap S 25 365 mm for bucket-outer-Ø 280-350 mm Cap S 50 430 mm for bucket-outer-Ø 350-420 mm <ul style="list-style-type: none"> ■ for standard filling devices and stationary pneumatic grease pumps ■ with 3 set screws on the side ■ powder-coated steel sheet



General recommendation

Unauthorised heating of roller bearings is usually the result of over-lubrication. Too much lubrication causes just as much damage as too little. As a rule of thumb, when greasing roller bearings only fill the grease up to a third of the free space between the roller bodies. Roller bearing relubrication equipment should therefore be used extremely sparingly. We recommend a thorough cleaning of the bearings at least once every 6 months, or at the latest once a year. When refilling pay attention to the filling quantity! Using lubricating greases requires a lot of experience. In case of doubt consult the specialists. We will be glad to advise you on all questions concerning lubrication.



Attention

Do not mix lubricating greases with different kinds of soap thickeners. Mixing has negative effects on the working stability, the drop point and the operating temperature range as well as on the structure of the grease itself.



Lubrication of roller and slide bearings in steel and rolling mills



PROGRAM

Industrial lubricants

MULTICAL®	calibration lubricants
MULTICOR®	anti-corrosion agents
MULTICUT®	non-water-miscible cooling lubricants
MULTIDRAW®	wire drawing lubricants
MULTIDRAW®	deep drawing lubricants
MULTIPRESS®	extrusion oils
TEXTOL®	lubricants for the textile industry
ZUBORA®	water-miscible cooling lubricants
DIVINOL®	lubricating greases
DIVINOL®	guideway and slideway oils, hardening oils, adhesive oils, hydraulic oils, industrial gear oils, commercial white oils, compressor oils, cylinder oils

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